State of Wisconsin
Department of Natural Resources
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dnr.wi.gov

Dissipative Cooling Evaluation Checklist

Form 3400-199 (R 10/13)

Notice: This checklist is meant to be a tool to help Water Quality-Based Effluent Limitation (WQBEL) calculators analyze dissipative cooling (DC) requests made by publicly operated treatment works (POTWs) under ss. NR 106.59(4) or (6), Wis. Adm. Code. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law (ss. 19.31-19.39, Wis. Stats.).

Facility Information

Permittee Name	This DC evaluation is (check one):
Freedom Sanitary District No. 1	○ Original DC Proposal or ◉ Updated DC Proposal
This operation is (check one): ○ New or relocated outfall, or ◉ Existing outfall	WPDES Permit No. WI-0020842-09

Submitted Information

Physical Characteristics:

Type of Receiving Water	○ Non-unidirectional water ◉ Unidirectional water	Comments Duck Creek is in Outagamie County and has an annual 7Q10 and 7Q2 of 0 cfs.
Waterbody Type	○ Cold water fishery ◉ Warm water sport fishery ○ Warm water forage fishery ○ Limited aquatic life ○ Wetland ○ Other _____	Comments
Substrate	○ Rocky ○ Gravel ○ Sand ◉ Silt ○ Unknown ○ Other _____	Comments Silt is the predominant material in the creek. There are areas of gravel, including at the outfall.
Emergent Features	○ Rocks ○ RipRap ○ Structure ◉ None ○ Other _____	Comments
Ambient Temperature Data	◉ Available ○ Not available	Comments Ambient temperature was collected 50 feet upstream of the outfall.

Operation Characteristics:

Multiple Discharges	○ There are multiple discharges that may contribute thermal loads ◉ There are NOT multiple discharges	Comments
Availability of Effluent Temperature Data	◉ Available ○ Month(s) only (explain) _____ ○ 12 months of representative data (as defined in NR 106.59(4 or 6) (3) ○ Not Available	Comments Temperature data for October - December are available on the monthly DMRs.
Temperature Profile of Thermal Plume	◉ Data available ○ Zone of free passage identified ○ Zones of free passage present ○ Zones of free passage absent ○ No data available	Comments The effluent discharges to the east bank of the Duck Creek. Instream temperature is available upstream of the outfall, at the outfall, and downstream of the outfall at various lateral locations and at the surface and bottom of the creek.
Mixing Zone Characteristics	◉ Visual/photographic information ○ Dye study ○ No data available	Comments

Biological Characteristics:

Discharge Impacts on Migration of Organisms	○ Impeded ○ Not impeded ◉ Unknown	Comments
Difference Between Communities in and Outside of Discharge	○ Observed ○ Not observed ◉ Unknown	Comments
Threatened or Endangered Organisms	○ Present; information source? ◉ Not present; information source? ○ Unknown	Comments The original DC request included biological surveys completed by the WDNR in 2015. No threatened or endangered organisms were found in the area.

Department Determination:
Water Quality Biologist

The water quality biologist concludes the following about the DC study:	○ Heated effluent from the discharge is not having an impact on the fish and aquatic life in the receiving water ◉ Heated effluent from the discharge may have a marginal impact but does not pose an overall concern to the fish and aquatic life community in the receiving water ○ Heated effluent from the discharge may cause an impact on the fish and aquatic life in the receiving water and poses a concern to the aquatic life community in the receiving water ○ Heated effluent from the discharge is causing an impact on the fish and aquatic life in the receiving water ○ Unsure ○ Water quality biologist not consulted	Comments *(include name of DNR staff participants)* Andrew Hudak was consulted about this DC study.
Was the regional fisheries biologist consulted by the water quality biologist when making this recommendation?	◉ Yes ○ No	Comments *(include name of DNR staff participants)* It was requested that more data be collected laterally across the stream.

Additional Support:

Does regional staff or basin engineer support physical evidence of DC?	◉ Yes ○ No ○ Not Obtained *If contacted, please attach written response from basin engineer.*	Comments *(include name of DNR staff participants)*
Did preparer or other DNR staff visit the site or is such person(s) familiar with the site so as to verify and substantiate the information in the submittal?	◉ Yes ○ No	Comments *(include name of DNR staff participants)*

Additional written documentation provided?

◉ Yes (if yes, written document should be attached)

○ No

DC Conclusion

Based on the available information, dissipative cooling for this operation is (check one):

- (•) Approved
- ( ) Not enough evidence
- ( ) Not approved

Additional Justification (if needed)

The original DC study had 70 days worth of data which showed that the instream temperature data returned to ambient conditions within 25 feet of the outfall under normal conditions and within 200 feet of the outfall under ice covered conditions. The revised DC study expanded the instream monitoring to include data laterally across the stream at the surface and bottom of the creek. The newer data shows that the stream has increased temperature on the east bank, middle, and west bank of the creek for less than 125 linear feet downstream of the outfall on the day of the study. At 125 linear feet, the middle and west bank of the creek had returned to ambient conditions.

Preparer Name	Job Title	
Nicole Krueger	Water Resources Engineer	
Signature of Preparer: Nicole Krueger		Date Signed: 11/11/2020

A copy of this completed form should be saved in SWAMP, and a notification of the final determination should be sent to the Thermal Implementation Coordinator.